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Learning Menus and Learning Contracts in the Instruction of Modern American History

A Paper

Presented to the Faculty of

Sweet Briar College

In Partial Fulfillment

Of the Requirements for the Degree

Master of Education

By Rhonda Dudley Stinnett

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Abstract

The purpose of this project was to ascertain if the use of learning contracts and learning menus in the instruction of Modern American History garners the same student understanding, as does the use of traditional methods of instruction as measured on a standardized test. The researcher used her two 8th grade Modern American History classes with a total of 26 students. The researcher used the National Assessment of Educational Progress U.S. History Assessment to test the students' understanding after two units taught using the traditional method and two units taught using the learning menus and learning contracts. The researcher also used a self-assessment Likert scale to determine the students' perception of their understanding using the two different types of instruction. The study determined that there is no difference in student understanding as measured by standardized test based on the traditional method of instruction and the learning menu/learning contract method of instruction.

Chapter 1

Introduction and Statement of the Problem

The researcher has spent her entire eighteen-year career as a high school/middle school history teacher. For nine of those years, she taught in a variety of suburban and rural schools. The researcher is currently employed as a middle school history teacher in a private, non-sectarian, independent, combination elementary/middle school. She was responsible for designing the curriculum for the middle school history program. This curriculum has been in place for the past nine years while the researcher has been teaching at this school. She has taught all the history courses offered in this middle school. As a veteran teacher of eighteen years, she has experienced the many instructional trends that characterize the American educational process. These various instructional strategies have included everything from traditional lecture type instruction to cooperative learning strategies. It was not until the researcher was introduced to the practice of differentiated instruction that she realized there was a method that would revolutionize the way that she taught her students and one that would have a profound impact on the students' understanding of the subject matter. Fortunately this researcher is in the unique position that her

particular school is not required to teach by the Standards of Learning established by Virginia. The curriculum is designed for the average to above average student and is guided by the dictates of high school college preparatory/honors curriculum. Specifically the curriculum established by the local private high school.

The impetus for the researcher to explore the idea of using learning menus and learning contracts to improve student comprehension in Modern American History was a unit she completed on *The Wizard of Oz*. During the fall semester of 2004, she used the learning menu strategy to differentiate a unit on the film, *The Wizard of Oz*. This unit was designed to provide instruction on the Populist/Progressive movements of the early 20th century. The results that were achieved by using this method of differentiation were positive enough to give the researcher pause. The activities were invested in the learning choices that they made using the menus and appeared to have garnered a greater understanding of the concepts of the Populist/Progressive movements through the use of differentiation by learning menus. After seeing the difference in student understanding by using the learning menus and learning contracts method of differentiation, the researcher decided that she wanted to research the

following question: Does differentiating instruction using learning menus and learning contracts improve student understanding in Modern American History s measured on a standardized test?

The Problem

The use of learning contracts and learning menus in the instruction of Modern American History garners the same student understanding, as does the use of traditional methods of instruction as measured on a standardized test. According to an article that appeared in the April 3,1996 edition of the *Wall Street Journal*, a report issued in Fall 1995 "…found that nearly 60 percent of high school seniors- soon to be voters- are "below basic" in their grasp of American history." In an attempt to see if there can be an improvement from below basic to above basic comprehension, the researcher decided to design a research project using learning menus and learning contracts to provide instruction in the Modern American History class. A learning contract is a means of providing practice for learners based on their particular learning needs as those needs relate to overall learning goals. Denee Mattioli, President of the National Council of the Social Studies writes: "Social studies education like any other discipline is constantly changing and adapting to meet current needs and challenges.

What worked 20 years ago doesn't necessarily work today." The traditional manner of delivering American History to students has been by lecture. By examining the standardized test results, this traditional method of instruction is not meeting the criteria for a complete understanding of history by students. In 2001, the National Assessment of Educational Progress (NAEP) in conjunction with the National Center for Education Statistics (NCES) and the Department of Education's Office of Educational Research and Improvement (OERI) again conducted a national assessment of achievement in U.S. History by students in grades 4,8 and 12. The results were disappointing. At the eighth grade level the results were as follows: 36% scored Below Basic level while 64% of the students scored at the Basic level. Based on these statistics, the researcher deduced that an alternate strategy for instruction should be implemented to increase students' understanding of American History. Learning contracts are not a necessarily new method of instruction. In the late 1970's A.W. Chickering and R.Wald released a study that examined the use of learning contracts in secondary education. "Chickering maintains that the power of the learning contract comes from its capacity to individualize learning activities, time methods, and standards for evaluation. Wald believes that it captures more

that any other academic process, the creativity and potential for individualizing instruction." (Hiemstra and Sisco, 1990, Chapter 8) This study will investigate the differentiation strategy of learning menus/contracts to see if the strategy increases understanding in history as measured by a standardized test.

She will be using two 8th grade Modern American History classes as the basis for the case study. One class consists of eight boys and five girls and the second class consists of eight boys and five girls. The classes are heterogeneously mixed and are at an equivalent ability level. Beginning in December 2005, the researcher will teach an American History unit using the traditional teaching method that had been employed thus far during the school year. Then the researcher will teach the next unit using the differentiation approach of learning menus/learning contracts. This treatment will be continued for two more units of study. The researcher will be using the National Assessment of Educational Progress U.S. History Assessment to provide a baseline measurement as well as post differentiated instruction measurement of understanding. By pre-testing and post-testing following the treatment, the researcher will be able to assess if there is a relationship between the use of learning menus/learning

contracts and the improvement of student understanding in Modern American History. The researcher will also provide the students with a self-assessment in the form of a Likert scale as to ascertain the students' perspective of their understanding of the American History topics covered using the traditional method of instruction versus the differentiation strategy of learning menus and learning contracts.

Chapter 2

Review of the Literature

The use of learning contracts and learning menus in the instruction of Modern American History results in the same student understanding as the traditional methods of instruction as measured on a standardized test. But, upon examining the research associated with differentiation, the researcher poses the question: Does differentiating instruction using learning menus and learning contracts improve student understanding in Modern American History as measured on a standardized test? Carol Ann Tomlinson maintains that differentiation is a philosophy based on a set of beliefs that includes the ideas that "the central job of schools is to maximize the capacity of each student." (Tomlinson, 2000) By using this philosophy teachers must differentiate in order to bring greater understanding of subject matter to each student. "Differentiation must be a refinement of, not a substitute for, high-quality curriculum and instruction. Expert or distinguished teaching focuses on the understanding and skills of a discipline, causes students to wrestle with profound ideas, calls on students to use what they learn in important ways, helps students organize and make sense of ideas and information, and aids students in connecting the classroom with a wider world." (Brandt,

1998, Danielson, 1996, Schlechty, 1997,Wiggins & McTighe, 1998) According to Carol Ann Tomlinson, "Differentiation calls for teachers to consider why instructional adaptation is necessary and how best to adapt or modify the curriculum (Tomlinson, 1999). Tomlinson continues to explain that "In essence, teachers might be "… modifying the content (what students will learn and the materials used), process (activities through which students make sense of key ideas using essential skills), product (how students demonstrate and extend what they understand and can do as a result of a span of learning), and/or learning environment (the classroom conditions that set the tone and expectation of learning) (Tomlinson, 1999). By using the learning menu/contract, the students will be provided choice in process and product. This choice will be measured using standardized tests to determine if this strategy of differentiation will result in a greater understanding of the content of Modern American History by the students. "They also point to a number of instructional strategies that invite attention to student readiness, interest, and learning profile, for example, learning centers, interest groups, group investigation, complex instruction, compacting, learning contracts, tiered activities, and the use of alternative forms of assessment." (Allan and Tomlinson, 2000) According to an article

by Eulouise Williams learning menu/contracts “provide opportunities for some students to investigate what the whole class is learning in a different way; or they allow students who have already mastered basic standards without doing actual daily work to extend what the class is learning into more complex, sophisticated activities. All students who master the same standards; but those who can learn at a faster pace in more depth spend most of their time on more challenging activities. (Williams, 2002) Willems, Willems and McConnell (1997) advocate for writing contracts that establish clear expectations on which both the teachers and students agree. According to Willard-Holt (1994), contracts should be specific about deliverables and the time lines for completing/submitting them although revisions may be both necessary and warranted. Contracts can give students the freedom to choose how to complete their tasks and the responsibility to do so. The teacher must ensure that every contract spell out the skills students need to be successful; he or she must also ensure that each is appropriately challenging, according to Kapuscnick and Hauslein (2001). A contract is a useful tool for any student for any reason – academic or behavioral; it is for this reason that they are widely used within the multiple strategies of differentiation.” By presenting these opportunities, the researcher maintains

that the students will garner greater understanding of the concepts of Modern American History.

According to research conducted by Mithaug and Mithaug of Columbia University, "The results indicated that students engaged in the self-management behaviors more frequently during independent work following student directed instruction than following teacher-directed instruction." (Mithaug and Mithaug, 2003). This finding is an indication that the learning menu/contracts will result in greater understanding for the students in the subject matter since they will be given a choice of process and product. D.K. Mithaug goes further and explains that "This work will be self-engaging, too, because it is based on students' choices and interests." (Mithaug, 2002) In the Winter 2005 edition of *Gifted Child Today*, Barnes-Johnson writes that she believes, "Differentiated lessons enable learners to experience information, which deepens their learning. As teachers work to bridge gaps in achievement, it is imperative that they find ways to incorporate this pedagogical standard into their practice." (Barnes-Johnson, 2005) " Differentiation- one facet of expert teaching-reminds us that these things are unlikely to happen for the full range of students unless curriculum and instruction fit each individual, unless students have choices about what

to learn and how, unless students take part in setting learning goals, and unless the classroom connects with the experiences and interest of the individual." (Tomlinson, 1995, 1999) Thus the connection between using the differentiation method of learning contracts/menus seems to fit perfectly into increasing achievement and bridging the gap in understanding in Modern American History.

According to a Report of the Task Force on Social Studies in the Middle School which was approved by the NCSS Board of Directors in January 1991, Social Studies instructional practices should "offer opportunities for decision making. Students engage in a variety of activities and situations that call for decision making. Gaining control over own learning experiences…" In an article which appeared in the 2003 edition of the ***ERIC Clearinghouse for Social Studies/Social Science Education*** by Sarah Drake Brown "all state departments of education should require a satisfactory level of student achievement on standards-based assessments in history."(Brown, 2003) "The National Assessment of Educational Progress (NAEP) in U.S. History has revealed great deficiencies in student knowledge (Lapp and Others, 2002) This finding adds credence to the need to improve students' scores on standardized assessments in Modern American History. "In other

words, differentiation can show us how to teach the same standard to a range of learners by employing a variety of teaching and learning modes." (Tomlinson, 2000) Tomlinson also reminds us that "…these things are unlikely to happen for the full range of students unless curriculum and instruction fit each individual, unless students have choices about what to learn and how, unless students take part in setting learning goals, and unless the classroom connects with the experiences and interests of the individual." (Tomlinson, 1995, 1999) "The idea, says Smutny (2003, is to adjust instruction to fit the skills and experience level of each student in the classroom."

It is apparent by reviewing the literature associated with differentiation that by allowing the students the choice in product and process afforded by the learning menu/contract that the comprehension in Modern American History will improve. "Common among teachers who differentiate instruction, according to Tomlinson, is their desire to improve a student's access to learning, his or her own motivation to learn, and his or her efficiency of learning." (Tomlinson, 1999)

Definition of Terms

Terms that are used throughout this study are as follows:

Differentiation – "At its most basic level, differentiating instruction means "shaking up" what goes on in the classroom so that students have multiple options for taking in information, making sense of ideas, and expressing what they learn. In other words, a differentiated classroom provides different avenues to acquiring content, processing or making sense of ideas, and developing products." (Tomlinson, 1999)

Learning Menu/Learning Contract – the strategy that allows the teacher to differentiate based on process and product according to different student learning styles.

Chapter 3

Method and Procedure

The use of learning contracts and learning menus in the instruction of Modern American History garners the same student comprehension, as does the use of traditional methods of instruction. The researcher will conduct her study of the following research question: " Does differentiating instruction using learning menus and learning contracts improve student comprehension in Modern American History?" The researcher will use her two eighth grade Modern American History classes which consist of a total of 26 students to determine if indeed there is a correlation between the use of learning menus/learning contracts and the improvement of student comprehension in American History.

Beginning in December 2005, the researcher will begin to teach a unit using the traditional method of instruction that has been employed thus far this academic year with these students. At the conclusion of the unit, the researcher will administer the National Assessment of Educational Progress U.S. History Assessment in the area that was studied to determine the student's comprehension of the unit just studied. This measurement will serve as baseline to compare the differentiated instruction to follow in the

next unit of study. The next unit will be taught using the differentiation strategy of learning menus/learning contracts. At the completion of this unit of study the students will again be tested using the National Assessment of Educational Progress U.S. History Assessment to determine the comprehension of the unit of study that was differentiated through learning contracts/learning menus. This strategy will again be repeated for the next two units of study. The next unit will be taught using the traditional method with assessment being made using the NAEP test at the end of the unit. Then the final unit will be differentiated with learning menus/learning contracts and the comprehension will again be measured using the same test. By pre-testing and post-testing following the treatments the researcher will be able to assess if there is a correlation between the use of learning menus/learning contracts and the improvement of student comprehension in Modern American History.

In addition to the pre-testing and the post-testing of the students, another source of data that the researcher will collect will be in the form of self-assessment by the students using a Likert scale. This will give the researcher an additional insight into the research problem by the students

being tested. The responses to the Likert scale will be based on the students' perspective of their comprehension of the units of history studied.

Once the researcher collects all of the data, she will use repeated measure analysis of variance to determine if there is a statistically significant difference in pre-treatment and post-treatment assessment scores. The variables to be investigated are the use of traditional method of instruction and the use of learning menus/learning contracts for instruction. The researcher will also use the non-parametric statistic Kruskal-Wallis to obtain additional data to analyze the relationship between learning menus/contracts and traditional instruction on student comprehension in Modern American History.

The researcher determined the focus of her research to ascertain if there exists a relationship between the use of learning menus/learning contracts in the instruction of Modern American History and an improvement in student comprehension. The researcher then decided what data would be needed to research this question. She decided that she would use standardized test scores from the National Assessment of Educational Progress and student self-assessment using a Likert scale. She then selected appropriate data sources which included the student participants

and the test records. The researcher then decided that she would use a random sample for her research which would consist of her two Modern American History classes. The researcher will present the data that she collects in the form of scores, measurements and analyses. By examining the statistical data obtain from the NAEP test scores the researcher will determine the answer to the research question.

Chapter 4

Findings

Upon completion of the action research project, the researcher examined a variety of statistical results, which led to the conclusion that the null hypothesis was the most attractive explanation for any observed differences. The first statistical test that the researcher ran was Analysis of Variance For Four Corelated Samples. The researcher gathered test score data from four tests of the National Assessment of Educational Progress U.S. History Assessment from Class 1 and Class 2. This method involved two pretreatment assessments and two post-treatment assessments. For both classes the obtained value at the .o5 Type I error rate was lower than the critical or tabled value which indicated that there was no relationship between the pretreatment and post-treatment assessment of understanding scores for both Class 1 and Class 2. This statistical test was one of two parametric statistical tests that the researcher used to examine her data.

The second parametric test the researcher used to examine her data was the SPSS program for Repeated Measure Analysis of Variance. Again the researcher used the test scores from both Class 1 and Class 2 on the National Educational Assessment of Educational Progress U.S. History

Assessment. Two of the tests were given pretreatment which consisted of the traditional method of instruction and two of the tests were given post-treatment which consisted of the use of learning menus/contracts. The results that the Repeated Measure of Analysis of Variance generated once again proved the null hypothesis the only explanation. The results of this statistical test demonstrated a significance level far below the .05 level. The statistical significance level for both Class 1 and Class 2 ranged from .004 to .200, which translates into the fact that there is no statistically significant difference between the pretreatment understanding assessment and the post-treatment understanding assessment.

The researcher then used the non-parametric statistical test, Kruskal-Wallis. Again the researcher used the test data secured from four tests, two of which were pretreatment and two of which were post-treatment. The assessment tests that were used were the National Assessment of Educational Progress U. S. History. The results of the Kruskal-Wallis test also demonstrated that there was no difference between the use of traditional methods of instruction and the use of learning menus/contracts in the improved comprehension in Modern American History. The standard deviation of both Class 1 and Class 2 was only 3.894, which

concludes that there is very little difference in the treatment. The Rascal-Wallis test also determined that the critical value for both Class 1 and Class 2 was 21.03 while the obtained value was .446. Since the obtained value was lower than the critical value the null hypothesis once again seems the most likely explanation.

The research then used a Likert scale to have the students self-assess how they viewed their understanding of Modern American History using both the traditional method and the learning menu/contract strategy. The students were asked to rank from one to five with five demonstrating the greatest amount of understanding for both the traditional method of instruction and the learning menu strategy. The 92% of students in Class 1 ranked the use of learning menus/contracts for the instruction of Modern American History as three or higher on the Likert scale indicated that they felt this method of instruction led to a greater understanding of Modern American History for them. The percentage in Class 2 for the same question was also 92% indicating that they also felt the learning menus/contracts led to a greater understanding of Modern American History for them. On the same Likert scale the students were asked if they thought that using the traditional method of instruction led to a greater

understanding of Modern American History. The results were as follows: Class 1 had 85% of the students choosing 3 or above for understanding and Class 2 had 69% of the students choosing 3 or above for understanding. The final question on the Likert Scale asked the students which method of instruction would they rather have to give them a greater understanding of Modern American History. In Class 1, 62% of the students preferred the Learning Menus/Contracts while 38% preferred the traditional method of instruction. In Class 2, 77% of the students preferred the Learning Menus/Contracts while 23% of the students preferred the traditional method of instruction. The Likert scale was used exclusively to assess the students' perception of the pretreatment and post-treatment.

The researcher used both two parametric statistical tests and one non-parametric statistical test to determine the answer to her research question. In all three tests, the conclusion was the same. There was no statistical evidence that the use of learning menu/contracts resulted in the improvement of student understanding in Modern American History.

Chapter 5

Conclusion

The use of learning contracts and learning menus in the instruction of Modern American History garners the same student understanding, as does the use of traditional methods of instruction as measured on a standardized test. The researcher investigated the question, "Does differentiating instruction using learning menus and learning contracts improve student understanding in Modern American History as measured on a standardized test?" The researcher devised a quantitative study which involved two 8th grade classes each with thirteen students of the same ability level. This study involved a series of four standardized tests on Modern American History from the National Assessment of Educational Progress U.S. History Assessment. The students were instructed using the traditional method of lecture and note-taking and then tested via the standardized test to obtain a measure of understanding. Next the students were instructed using the differentiation strategy of learning menus/contracts and were tested again via the standardized test to obtain another measure of understanding. This treatment was then repeated with the final data reflecting two pretreatment scores and two post-treatment scores. After

obtaining the data for each class, the researcher conducting statistical tests which consisted of two parametric tests and one nonparametric test to ascertain if there existed a difference in the students' understanding of Modern American History in relation to the method of instruction. The researcher also used the non-parametric test of Kruskal-Wallis to determine if a relationship existed between the students' standardized test scores and their understanding of Modern American History as related to the method of instruction.

The resulting statistical data supported the null hypothesis that the use of learning contracts and learning menus in the instruction of Modern American History garners the same student understanding, as does the use of traditional methods of instruction. In all three statistical tests that the researcher employed there existed no significant statistical difference to indicate that the use of the differentiation strategy of learning menus and learning contracts resulted in an increased understanding by the students in Modern American History. Both the traditional method of instruction and the learning menu/contracts method of instruction resulted in the same level of understanding as measured by the standardized test of the National Assessment of Educational Progress U.S. History.

The researcher also administered a Likert scale survey to the students to ascertain the students' perception of their understanding of Modern American History using the traditional method of instruction and the learning menu/contracts strategy of differentiation. The results of this survey revealed that both Class 1 and Class 2 felt as if the use of the learning menu/contracts method of instruction resulted in them having a greater understanding of Modern American History. Both classes also indicated on this survey that the majority of the students preferred the learning menu/contract method of instruction to the traditional method of instruction in Modern American History to produce a greater understanding of the subject matter.

The results of the study were surprising to the researcher. The researcher thought that the differentiation strategy of learning menu/contracts would result in a greater understanding of Modern American History as measured on a standardized assessment. But, there was no significant difference between the two methods of instruction in terms of understanding. The researcher was not surprised by the students' response to the Likert scale survey. The researcher thought that the students would prefer the learning menu/contracts method of instruction to

the traditional method of instruction. The students overwhelmingly did prefer the strategy of learning menu/contracts in instruction of Modern American History. But the fact that the students preferred this method did not statistically result in a greater understanding of Modern American History as measured by standardized assessments. While the differentiation strategy of learning menu/contracts did not result in increased student understanding of Modern American History, it did result in the students being more engaged in the subject matter.

The researcher identified two threats to this study. One of the threats was an internal validity threat. This is the threat of history. Due to the fact that the testing was conducted over a period of three months, there was the possibility for the students to be influence by other factors other than the experimental treatment. The internal validity threat of differential selection of participants was also present in this project. While the two eighth grade history classes that were used in the testing were basically of the same ability level, the participants were not randomly selected.

Although there was no statistically significant increase in student understanding in Modern American History as measured on a standardized test, the test scores did not decrease when using learning menus/contracts.

Therefore using differentiation strategies in classroom instruction should not be dismissed for fear of lower standardized test performance by students. In fact, teachers should use differentiation strategies such as learning menus and learning contracts no only to produce evidence of understanding on standardized assessments but also to ensure greater engagement by the students in the learning process.

Appendixes

Frequencies

Statistics

		Student	scoreone	scoretwo
N	Valid	13	13	13
	Missing	0	0	0

Frequency Table

Student

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	1	7.7	7.7	7.7
	2	1	7.7	7.7	15.4
	3	1	7.7	7.7	23.1
	4	1	7.7	7.7	30.8
	5	1	7.7	7.7	38.5
	6	1	7.7	7.7	46.2
	7	1	7.7	7.7	53.8
	8	1	7.7	7.7	61.5
	9	1	7.7	7.7	69.2
	10	1	7.7	7.7	76.9
	11	1	7.7	7.7	84.6
	12	1	7.7	7.7	92.3
	13	1	7.7	7.7	100.0
	Total	13	100.0	100.0	

scoreone

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	50.00	1	7.7	7.7	7.7
	55.00	1	7.7	7.7	15.4
	60.00	2	15.4	15.4	30.8
	65.00	1	7.7	7.7	38.5
	70.00	2	15.4	15.4	53.8
	75.00	2	15.4	15.4	69.2
	80.00	2	15.4	15.4	84.6
	85.00	2	15.4	15.4	100.0
	Total	13	100.0	100.0	

scoretwo

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	60.00	2	15.4	15.4	15.4
	70.00	2	15.4	15.4	30.8
	80.00	5	38.5	38.5	69.2
	85.00	2	15.4	15.4	84.6
	90.00	1	7.7	7.7	92.3
	95.00	1	7.7	7.7	100.0
	Total	13	100.0	100.0	

	Student	scoreone	scoretwo	scorethree	scorefour
1	1	85.00	90.00	94.00	78.00
2	2	60.00	65.00	71.00	70.00
3	3	80.00	75.00	76.00	85.00
4	4	75.00	65.00	94.00	81.00
5	5	65.00	70.00	71.00	52.00
6	6	65.00	45.00	35.00	52.00
7	7	75.00	80.00	100.00	78.00
8	8	75.00	55.00	76.00	40.00
9	9	65.00	75.00	47.00	60.00
10	10	85.00	75.00	94.00	81.00
11	11	65.00	65.00	71.00	67.00
12	12	60.00	50.00	65.00	55.00
13	13	60.00	70.00	65.00	37.00

	Student	scoreone	scoretwo	scorethree	scorefour
1	1	85.00	90.00	94.00	78.00
2	2	60.00	65.00	71.00	70.00
3	3	80.00	75.00	76.00	85.00
4	4	75.00	65.00	94.00	81.00
5	5	65.00	70.00	71.00	52.00
6	6	65.00	45.00	35.00	52.00
7	7	75.00	80.00	100.00	78.00
8	8	75.00	55.00	76.00	40.00
9	9	65.00	75.00	47.00	60.00
10	10	85.00	75.00	94.00	81.00
11	11	65.00	65.00	71.00	67.00
12	12	60.00	50.00	65.00	55.00
13	13	60.00	70.00	65.00	37.00

Student Survey

1. I had a greater understanding of Modern American History using the learning menu.
   1 2 3 4 5

2. I had a greater understanding of Modern American History using the traditional method of instruction.
   1 2 3 4 5

3. Which learning method would you rather use to learn Modern American History?

_______**Learning Menu** ______**Traditional Method**

5=highest
1 = lowest

Student Likert Survey Results Class 2

Question 1) I had greater understanding of Modern American History using the learning menu. (1= lowest 5=highest)

- 1= 0%
- 2=8%
- 3=8%
- 4=61%
- 5=23%

Question 2) I had greater understanding of Modern American History using the traditional method of instruction. (1= lowest 5=highest)

- 1=23%
- 2=8%
- 3=39%
- 4=15%
- 5=15%

Question 3) Which learning method would you rather use to learn Modern American History?

- Learning Menu= 77%
- Traditional Method = 23%

Student Likert Survey Results Class 1

Question 1) I had greater understanding of Modern American History using the learning menu. (1= lowest 5=highest)

- 1= 0%
- 2=8%
- 3=38%
- 4=38%
- 5=16%

Question 2) I had greater understanding of Modern American History using the traditional method of instruction. (1=lowest 5= highest)

- 1=0%
- 2=15%
- 3=31%
- 4=31%
- 5=23%

Question 3) Which learning method would you rather use to learn Modern American History?

- Learning Menu = 62%
- Traditional Method = 38%

Test Results Class 1

5th pd

VassarStats Printable Report
ANOVA for 4 Corelated Samples

Tue Apr 4 09:46:29 EDT 2006

Values entered:

count	X_a	X_b	X_c	X_d
1	60	80	82	63
2	60	70	88	67
3	80	85	100	78
4	75	80	88	81
5	85	90	94	85
6	70	80	94	74
7	70	60	71	52
8	85	95	82	96
9	65	85	82	78
10	55	60	88	70
11	75	80	71	70
12	50	70	76	67
13	80	80	82	78

Summary Values

Values	X_a	X_b	X_c	X_d	Total
n	13	13	13	13	52
sum	910	1015	1098	959	3982
mean	70	78.0769	84.4615	73.7692	76.5769
sumsq	65250	80575	93658	72181	311664
SS	1550	1326.9231	919.2308	1436.3077	6734.6923
variance	129.1667	110.5769	76.6026	119.6923	132.0528
st. dev.	11.3652	10.5156	8.7523	10.9404	11.4914

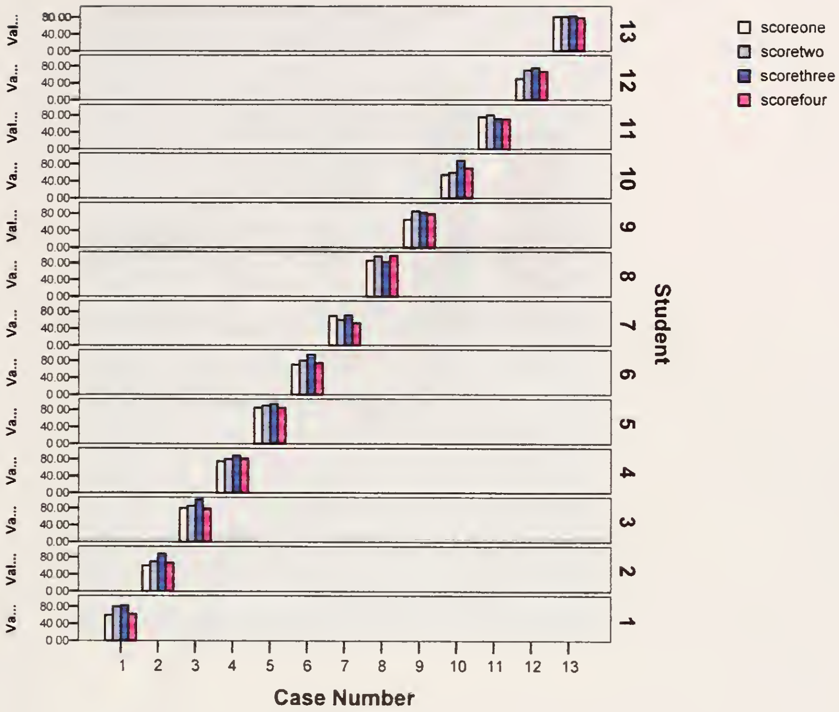
Variances and standard deviations are calculated with denominator = n-1.

ANOVA SUMMARY

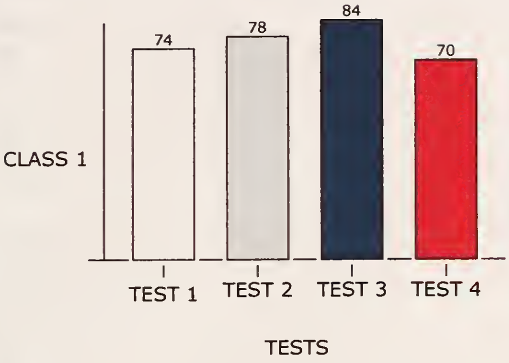
Source	SS	df	MS	F	P
Treatment	1502.2308	3	500.744	10.09	<.0001
Error	1786.2692	36	49.619		
Ss/Bl	3446.1923	12			
Total	6734.6923	51			

Ss/Bl = Subjects or Blocks, depending on the design.

5th period


Val...
Va...
80.00
40.00
0.00
13
12
11
10
9
8
7
6
5
4
3
2
1
Student
1 2 3 4 5 6 7 8 9 10 11 12 13
Case Number
☐ scoreone
▨ scoretwo
▨ scorethree
▨ scorefour

AVERAGE TEST RESULTS CLASS 1



Test 1 Results January 2005 5th period

Name	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Correct	Wrong	Percent
Michael	✓	✓	✗	✓	✓	✗	✓	✗	✗	✗	✓	✓	✓	✓	✓	✗	✓	✗	✓	✗	12	8	[illegible]
Ryan	✓	✓	✗	✓	✓	✗	✓	✓	✗	✓	✓	✓	✓	✓	✓	✗	✗	✗	✗	✗	12	8	[illegible]
Pen	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	✗	✗	✓	16	4	80
Robeert	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✗	✓	✗	✗	✓	15	5	75
Jordan	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✗	✓	✓	17	3	85
Reed	✓	✓	✗	✓	✓	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	✗	✓	✗	✗	✗	14	6	70
Zach	✓	✓	✗	✓	✓	✓	✓	✓	✗	✗	✓	✓	✓	✓	✓	✓	✗	✗	✗	✓	14	6	70
Julian	✓	✓	✓	✓	✓	✗	✓	✗	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	17	3	85
Blair	✓	✓	✗	✓	✓	✗	✓	✗	✗	✗	✓	✓	✓	✓	✓	✓	✗	✓	✓	✗	13	7	65
Jen	✓	✓	✓	✗	✓	✓	✓	✗	✗	✗	✓	✓	✓	✗	✓	✗	✗	✗	✓	✗	11	9	55
Sydna	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✗	✗	✗	15	5	75
Mary	✓	✓	✗	✓	✓	✗	✓	✗	✗	✗	✓	✓	✓	✓	✓	✗	✗	✗	✗	✗	10	10	50
Katie	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	✓	✗	16	4	80

[illegible] 60

[illegible] 60

Class Average = 70%

Test 2 Results January 2005 5th Period

Name	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Correct	Wrong	Percent
Michael	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	⊗	✓	⊗	⊗	⊗	16	4	80
Ryan	✓	✓	⊗	✓	✓	✓	✓	✓	⊗	✓	✓	✓	✓	✓	✓	⊗	✓	⊗	⊗	⊗	14	6	70
Pen	✓	✓	⊗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	⊗	✓	✓	⊗	✓	17	3	85
Robert	✓	✓	⊗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	⊗	⊗	✓	✓	⊗	✓	16	4	80
Jordan	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	⊗	✓	⊗	✓	✓	18	2	90
Reed	✓	✓	⊗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	⊗	⊗	⊗	✓	✓	16	4	80
Zach	✓	✓	⊗	✓	✓	⊗	✓	✓	⊗	⊗	✓	✓	✓	✓	✓	⊗	✓	⊗	⊗	⊗	12	8	60
Julian	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	⊗	✓	19	1	95
Blair	✓	✓	⊗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	⊗	✓	✓	✓	⊗	17	3	85
Jen	✓	✓	⊗	✓	✓	✓	✓	⊗	⊗	✓	✓	✓	✓	⊗	✓	⊗	✓	⊗	⊗	⊗	12	8	60
Sydna	✓	✓	⊗	⊗	✓	~~⊗~~ ✓	✓	~~⊗~~ ✓	✓	✓	✓	✓	✓	✓	✓	~~⊗~~ ✓	✓	⊗	~~⊗~~ ✓	⊗	16	4	80
Mary	✓	✓	⊗	✓	✓	⊗	✓	⊗	✓	✓	✓	✓	✓	✓	✓	⊗	✓	⊗	⊗	✓	14	6	70
Katie	✓	✓	⊗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	⊗	✓	⊗	⊗	✓	16	4	80

Class Avg - 78 %

Test 3 Results February 2006 5th period

Name	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Correct	Wrong	Percent
Michael	✓	✓	✓	✓	✓	✓	✗	✓	✗	✓	✓	✓	✓	✓	✓	✗	✓	14	3	82
Ryan	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✗	✓	15	2	88
Pen	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	17	0	100
Robert	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	✓	✓	✗	✓	15	2	88
Jordan	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	✓	16	1	94
Reed	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	16	1	94
Zach	✓	✓	✓	✓	✓	✗	✓	✗	✗	✓	✓	✓	✓	✓	✗	✗	✓	12	5	71
Julian	✓	✗	✓	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	14	3	82
Blair	✓	✗	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✗	✓	✓	✓	✓	14	3	82
Jen	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	✓	✓	✗	✓	15	2	88
Sydna	✓	✗	✓	✓	✓	✗	✓	✓	✗	✓	✓	✓	✓	✓	✓	✗	✗	12	5	71
Mary	✗	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	✓	✓	✗	✗	13	4	76
Katie	✓	✓	✓	✓	✓	✓	✗	✓	✗	✓	✓	✓	✓	✓	✓	✗	✓	14	3	82

Class Avg 84%

Tests Results March 2006 5th period

Name	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	Correct	Wrong	Percent
Michael	✗	✓	✓	✓	✗	✓	✗	✓	✓	✓	✓	✓	✓	✗	✓	✓	✗	✓	✗	✓	✓	✗	✓	✓	✗	✗	✗	17	10	63
Ryan	✗	✗	✗	✓	✗	✓	✗	✗	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	✗	✗	✓	✓	✓	✓	✓	✓	✓	18	9	67
Pen	✓	✓	✓	✓	✗	✓	✗	✓	✓	✓	✓	✗	✓	✓	✗	✓	✓	✓	✓	✓	✓	✗	✗	✓	✓	✓	✓	21	6	78
Robert	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✗	✓	✓	✓	✓	✓	✗	✓	✓	✗	✓	✓	✗	✓	22	5	81
Jordan	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	✓	✓	✓	✓	✓	✓	✗	✓	✓	✗	✓	23	4	85
Reed	✓	✓	✓	✓	✗	✓	✓	✓	✓	✗	✓	✓	✓	✓	✗	✗	✓	✓	✓	✓	✓	✓	✗	✗	✓	✗	✓	20	7	74
Zach	✗	✗	✓	✗	✗	✓	✗	✓	✓	✗	✓	✗	✓	✗	✓	✗	✓	✓	✗	✗	✓	✓	✗	✓	✓	✓	✗	14	13	52
Julian	✓	✓	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	26	1	96
Blair	✓	✗	✓	✓	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✗	✓	✓	✗	✗	21	6	78
Jen	✓	✓	✓	✓	✗	✓	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	✗	✗	✗	✓	✓	✓	✗	19	8	70
Sydna	✓	✓	✓	✓	✗	✓	✓	✗	✓	✓	✓	✓	✗	✗	✗	✗	✓	✓	✓	✓	✓	✓	✗	✓	✓	✗	✓	19	8	70
Mary	✗	✗	✓	✗	✗	✓	✗	✓	✓	✓	✓	✓	✓	✓	✗	✗	✓	✓	✗	✓	✓	✓	✓	✗	✓	✓	✓	18	9	67
Katie	✓	✗	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	✗	✓	✓	✗	✓	✗	✓	✓	✓	21	6	78

Class Average 74

5th period Stinnett test results

	Student	scoreone	scoretwo	scorethree	scorefour
1	1	60.00	80.00	82.00	63.00
2	2	60.00	70.00	88.00	67.00
3	3	80.00	85.00	100.00	78.00
4	4	75.00	80.00	88.00	81.00
5	5	85.00	90.00	94.00	85.00
6	6	70.00	80.00	94.00	74.00
7	7	70.00	60.00	71.00	52.00
8	8	85.00	95.00	82.00	96.00
9	9	65.00	85.00	82.00	78.00
10	10	55.00	60.00	88.00	70.00
11	11	75.00	80.00	71.00	70.00
12	12	50.00	70.00	76.00	67.00
13	13	80.00	80.00	82.00	78.00

Descriptives

Descriptive Statistics

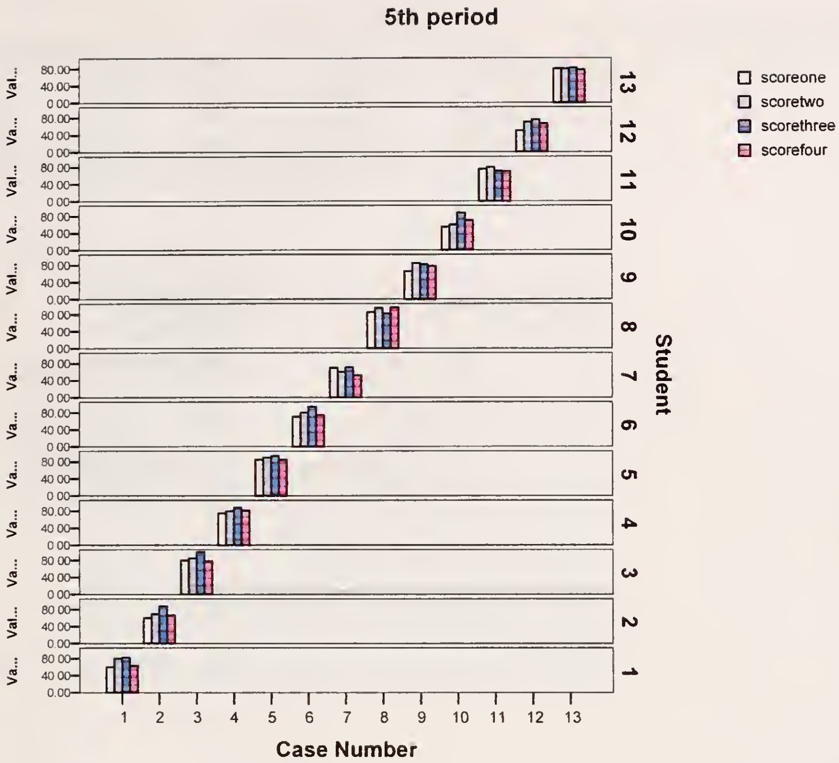
	N	Minimum	Maximum	Mean	Std. Deviation
Student	13	1	13	7.00	3.894
scoreone	13	50.00	85.00	70.0000	11.36515
scoretwo	13	60.00	95.00	78.0769	10.51556
scorethree	13	71.00	100.00	84.4615	8.75229
scorefour	13	52.00	96.00	73.7692	10.94040
Valid N (listwise)	13				

Oneway

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
scoreone	Between Groups	1550.000	12	129.167		
	Within Groups	.000	0	.		
	Total	1550.000	12			
scoretwo	Between Groups	1326.923	12	110.577	.	.
	Within Groups	.000	0	.		
	Total	1326.923	12			
scorethree	Between Groups	919.231	12	76.603	.	.
	Within Groups	.000	0	.		
	Total	919.231	12			
scorefour	Between Groups	1436.308	12	119.692	.	.
	Within Groups	.000	0	.		
	Total	1436.308	12			

Graph



Factor Analysis

Correlation Matrix

		scoreone	scoretwo	scorethree	scorefour
Sig. (1-tailed)	scoreone		.004	.200	.010
	scoretwo	.004		.131	.000
	scorethree	.200	.131		.062
	scorefour	.010	.000	.062	

Communalities

	Initial	Extraction
scoreone	1.000	.674
scoretwo	1.000	.832
scorethree	1.000	.313
scorefour	1.000	.842

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.660	66.502	66.502	2.660	66.502	66.502
2	.810	20.241	86.743			
3	.366	9.146	95.889			
4	.164	4.111	100.000			

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component
	1
scoreone	.821
scoretwo	.912
scorethree	.559
scorefour	.917

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

NPar Tests

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
scoreone	13	70.0000	11.36515	50.00	85.00
scoretwo	13	78.0769	10.51556	60.00	95.00
scorethree	13	84.4615	8.75229	71.00	100.00
scorefour	13	73.7692	10.94040	52.00	96.00
Student	13	7.00	3.894	1	13

Kruskal-Wallis Test

Ranks

	Student	N	Mean Rank
scoreone	1	1	3.50
	2	1	3.50
	3	1	10.50
	4	1	8.50
	5	1	12.50
	6	1	6.50
	7	1	6.50
	8	1	12.50
	9	1	5.00
	10	1	2.00
	11	1	8.50
	12	1	1.00
	13	1	10.50
	Total	13	
scoretwo	1	1	7.00
	2	1	3.50
	3	1	10.50
	4	1	7.00
	5	1	12.00
	6	1	7.00
	7	1	1.50
	8	1	13.00
	9	1	10.50
	10	1	1.50
	11	1	7.00
	12	1	3.50
	13	1	7.00
	Total	13	

Ranks

	Student	N	Mean Rank
scorethree	1	1	5.50
	2	1	9.00
	3	1	13.00
	4	1	9.00
	5	1	11.50
	6	1	11.50
	7	1	1.50
	8	1	5.50
	9	1	5.50
	10	1	9.00
	11	1	1.50
	12	1	3.00
	13	1	5.50
	Total	13	
scorefour	1	1	2.00
	2	1	3.50
	3	1	9.00
	4	1	11.00
	5	1	12.00
	6	1	7.00
	7	1	1.00
	8	1	13.00
	9	1	9.00
	10	1	5.50
	11	1	5.50
	12	1	3.50
	13	1	9.00
	Total	13	

Test Statistics[a,b]

	scoreone	scoretwo	scorethree	scorefour
Chi-Square	12.000	12.000	12.000	12.000
df	12	12	12	12
Asymp. Sig.	.446	.446	.446	.446

a. Kruskal Wallis Test

b. Grouping Variable: Student

Test Results Class 2

6th pd

VassarStats Printable Report
ANOVA for 4 Corelated Samples

Tue Apr 4 09:59:45 EDT 2006

Values entered:

count	X_a	X_b	X_c	X_d
1	85	90	94	78
2	60	65	71	70
3	80	75	76	85
4	75	65	94	81
5	65	70	71	52
6	65	45	35	52
7	75	80	100	78
8	75	55	76	40
9	65	75	47	60
10	85	75	94	81
11	65	65	71	67
12	60	50	65	55
13	60	70	65	37

Summary Values

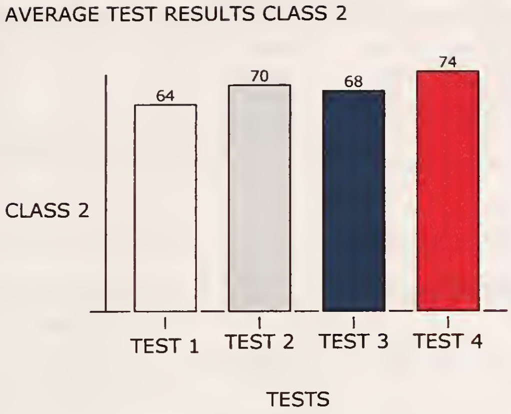
Values	X_a	X_b	X_c	X_d	Total
n	13	13	13	13	52
sum	915	880	959	836	3590
mean	70.3846	67.6923	73.7692	64.3077	69.0385
sumsq	65425	61400	75067	56906	258798
SS	1023.0769	1830.7692	4322.3077	3144.7692	10949.9231
variance	85.2564	152.5641	360.1923	262.0641	214.7044
st. dev.	9.2334	12.3517	18.9787	16.1884	14.6528

Variances and standard deviations are calculated with denominator = n-1.

ANOVA SUMMARY

Source	SS	df	MS	F	P
Treatment	629	3	209.667	2.18	0.107281
Error	3467.5	36	96.319		
Ss/Bl	6853.4231	12			
Total	10949.9231	51			

Ss/Bl = Subjects or Blocks, depending on the design.


AVERAGE TEST RESULTS CLASS 2
64
70
68
74
CLASS 2
TEST 1
TEST 2
TEST 3
TEST 4
TESTS

Descriptives

Descriptive Statistics

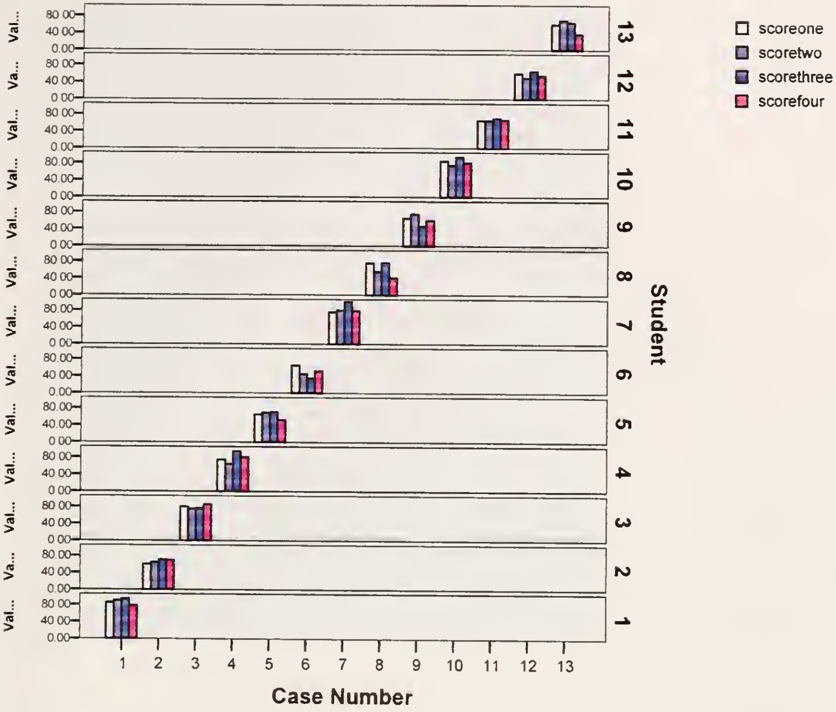
	N	Minimum	Maximum	Mean	Std. Deviation
Student	13	1	13	7.00	3.894
scoreone	13	60.00	85.00	70.3846	9.23344
scoretwo	13	45.00	90.00	67.6923	12.35168
scorethree	13	35.00	100.00	73.7692	18.97873
scorefour	13	37.00	85.00	64.3077	16.18839
Valid N (listwise)	13				

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
scoreone	Between Groups	1023.077	12	85.256	.	.
	Within Groups	.000	0	.		
	Total	1023.077	12			
scoretwo	Between Groups	1830.769	12	152.564	.	.
	Within Groups	.000	0			
	Total	1830.769	12			
scorethree	Between Groups	4322.308	12	360.192	.	.
	Within Groups	.000	0	.		
	Total	4322.308	12			
scorefour	Between Groups	3144.769	12	262.064	.	.
	Within Groups	.000	0	.		
	Total	3144.769	12			

Graph

6th Period



Val...
Va...
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Student
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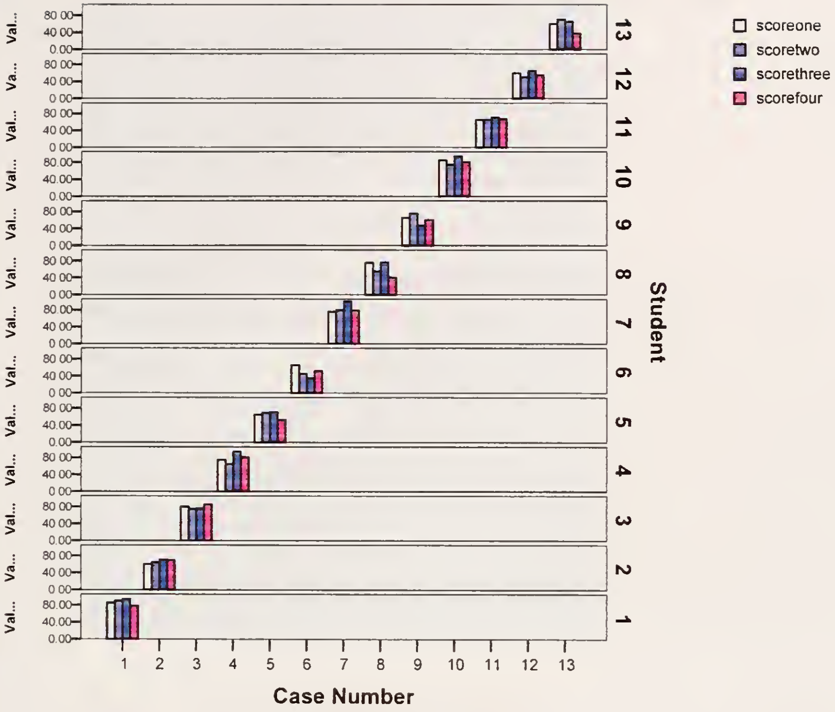
11
12
13
Case Number
☐ scoreone
▨ scoretwo
▨ scorethree
🟥 scorefour

6th Period


Val...
Va...
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40 00
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8
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6
5
4
3
2
1
Student
1
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11
12
13
Case Number
□ scoreone
▨ scoretwo
■ scorethree
🟥 scorefour

Test 1 Results January 2005 6th Period

Name	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Correct	Wrong	Percent
Paul	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	17	3	85
Mason	✓	✓	✗	✓	✓	✗	✗	✗	✓	✓	✓	✓	✓	✓	✓	✗	✗	✗	✗	✓	12	8	60
Jon	✓	✓	✓	✓	✓	✗	✓	✗	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	✓	✓	16	4	80.
Cullen	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	✗	✓	✗	15	5	75
Bennett	✓	✓	✗	✓	✓	✓	✓	✗	✗	✓	✓	✓	✓	✓	✓	✓	✗	✗	✗	✗	13	7	65
Chip	✓	✓	✗	✓	✓	✗	✓	✗	✓	✗	✗	✓	✓	✓	✓	✓	✗	✓	✗	✓	13	7	65
Davis	✓	✓	✓	✓	✓	✓	✗	✗	✗	✓	✓	✓	✓	✓	✓	✗	✓	✗	✓	✓	15	5	75
Stephen	✓	✓	✓	✓	✓	✓	✗	✓	✗	✗	✓	✓	✓	✓	✓	✗	✓	✗	✓	✓	15	5	75
Sarah	✓	✓	✗	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	✓	✗	✗	✗	13	7	65
Karen	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✗	✓	✓	17	3	85
Sammie	✓	✓	✗	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	✓	✓	✗	✗	✗	✗	✗	13	7	65
Taylor	✓	✓	✗	✓	✓	✗	✗	✓	✗	✗	✓	✓	✓	✓	✓	✗	✓	✗	✗	✓	12	8	60
Alex	✓	✓	✗	✓	✓	✗	✓	✗	✓	✗	✓	✓	✓	✓	✓	✗	✗	✗	✗	✓	12	8	60

~~Class Avg (- Stephen) 70%~~

Class Avg - 70%

Test 2 Results January 2005 6th Period

Name	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Correct	Wrong	Percent
Paul	✓	✓	⊗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	⊗	18	2	96
Mason	✓	✓	⊗	✓	✓	✓	⊗	⊗	✓	⊗	⊗	✓	✓	✓	✓	⊗	✓	✓	✓	⊗	13	7	65
Jon	✓	✓	⊗	✓	✓	⊗	✓	✓	✓	✓	✓	✓	✓	✓	✓	⊗	⊗	✓	✓	⊗	15	5	75
Cullen	✓	✓	⊗	✓	✓	✓	✓	⊗	⊗	✓	✓	✓	✓	✓	✓	⊗	✓	⊗	⊗	⊗	13	7	65
Bennett	✓	✓	✓	✓	✓	⊗	✓	⊗	✓	✓	✓	✓	✓	✓	✓	⊗	⊗	⊗	✓	⊗	14	6	70
Chip	✓	⊗	⊗	✓	✓	⊗	⊗	⊗	✓	✓	✓	✓	✓	✓	⊗	⊗	⊗	⊗	⊗	⊗	9	11	45
Davis	✓	✓	⊗	✓	✓	✓	⊗	✓	✓	✓	✓	✓	✓	✓	✓	⊗	✓	⊗	✓	✓	16	4	80
Stephen	✓	⊗	✓	⊗	✓	✓	⊗	✓	⊗	⊗	✓	✓	✓	⊗	✓	⊗	✓	⊗	⊗	✓	11	9	55
Sarah	✓	✓	⊗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	⊗	✓	⊗	⊗	⊗	15	5	75
Karen	✓	✓	⊗	✓	✓	⊗	✓	✓	✓	✓	✓	✓	✓	✓	✓	⊗	✓	⊗	✓	⊗	15	5	75
Sammie	✓	✓	⊗	✓	✓	⊗	✓	✓	⊗	✓	✓	✓	✓	✓	✓	⊗	✓	⊗	⊗	⊗	13	7	65
Taylor	✓	✓	⊗	✓	✓	⊗	⊗	⊗	⊗	⊗	✓	✓	⊗	✓	✓	⊗	✓	⊗	⊗	✓	10	10	50
Alex	✓	✓	⊗	✓	✓	⊗	✓	✓	✓	✓	✓	✓	✓	✓	✓	⊗	✓	⊗	⊗	⊗	14	6	70

Class Avg - 68%

Test 3 Results February 2006 6th period

Name	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Correct	Wrong	Percent
Paul	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	16	1	94
Mason	✗	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✗	✗	✓	12	5	71
Jon	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	✓	✗	✓	✓	✗	✗	13	4	76
Cullen	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	16	1	94
Bennett	✓	✓	✓	✓	✓	✗	✗	✓	✗	✓	✓	✓	✓	✓	✓	✗	✗	12	5	71
Chip	✗	✓	✓	✓	✓	✗	✗	✗	✗	✓	✓	✗	✗	✗	✗	✗	✗	6	11	35
Davis	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	17	0	100
Stephen	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	✗	✗	✗	✓	13	4	76
Sarah	✓	✓	✓	✓	✓	✗	✗	✗	✗	✓	✓	✗	✗	✗	✓	✗	✗	8	9	47
Karen	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	✓	16	1	94
Sammie	✓	✗	✓	✓	✓	✗	✓	✓	✗	✓	✓	✓	✗	✓	✓	✗	✓	12	5	71
Taylor	✓	✓	✓	✓	✓	✗	✓	✗	✗	✓	✓	✓	✗	✓	✗	✗	✓	11	6	65
Alex	✓	✓	✓	✓	✓	✗	✓	✓	✗	✗	✓	✓	✗	✓	✓	✗	✗	11	6	65

Class Avg 74 %

Tests Results March 2006 6th period

Name	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	Correct	Wrong	Percent
Paul	✓	✓	✓	✓	⊗	✓	⊗	⊗	✓	✓	✓	⊗	✓	✓	✓	✓	✓	✓	⊗	✓	✓	✓	⊗	✓	✓	✓	✓	21	6	78
Mason	✓	⊗	✓	⊗	⊗	✓	⊗	✓	✓	✓	✓	✓	✓	⊗	✓	✓	✓	✓	✓	✓	✓	✓	⊗	✓	✓	⊗	⊗	19	8	70
Jon	✓	✓	✓	✓	⊗	✓	✓	✓	✓	✓	✓	✓	✓	⊗	✓	✓	✓	✓	✓	✓	⊗	✓	✓	⊗	✓	✓	✓	23	4	85
Cullen	✓	✓	✓	✓	⊗	✓	✓	✓	✓	✓	✓	✓	✓	⊗	✓	✓	✓	✓	✓	✓	⊗	✓	⊗	✓	✓	✓	⊗	22	5	81
Bennet	✓	⊗	⊗	⊗	⊗	✓	⊗	⊗	✓	✓	⊗	⊗	✓	⊗	✓	✓	✓	✓	⊗	⊗	✓	✓	⊗	⊗	✓	✓	✓	14	13	52
Chip	⊗	⊗	⊗	⊗	⊗	✓	✓	⊗	✓	⊗	⊗	✓	✓	✓	✓	✓	✓	⊗	✓	⊗	⊗	✓	⊗	⊗	✓	✓	✓	14	13	52
Davis	✓	✓	✓	✓	⊗	✓	⊗	⊗	✓	✓	✓	✓	✓	⊗	✓	✓	✓	✓	⊗	✓	✓	⊗	✓	✓	✓	✓	✓	21	6	79
Stephen	✓	✓	✓	⊗	✓	⊗	⊗	✓	✓	✓	⊗	✓	✓	✓	✓	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	11	16	40
Sarah	✓	⊗	✓	✓	✓	⊗	⊗	⊗	✓	✓	✓	✓	✓	⊗	⊗	✓	✓	✓	⊗	✓	⊗	✓	✓	⊗	✓	⊗	⊗	16	11	60
Karen	✓	⊗	✓	✓	⊗	✓	⊗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	⊗	⊗	✓	✓	✓	✓	✓	22	5	81
Sammie	✓	⊗	✓	⊗	✓	✓	✓	✓	✓	✓	✓	⊗	⊗	✓	⊗	✓	✓	⊗	⊗	✓	✓	✓	⊗	⊗	✓	✓	✓	18	9	67
Taylor	⊗	✓	✓	⊗	⊗	✓	✓	✓	✓	✓	⊗	✓	✓	⊗	⊗	⊗	✓	✓	✓	⊗	⊗	⊗	✓	⊗	✓	⊗	✓	15	12	55
Alex	✓	⊗	✓	✓	⊗	✓	⊗	⊗	✓	⊗	⊗	⊗	⊗	⊗	⊗	⊗	✓	✓	⊗	✓	⊗	✓	⊗	⊗	⊗	✓	⊗	10	17	37

Class Avg 64

6th period Stinnett test results

	Student	scoreone	scoretwo	scorethree	scorefour
1	1	85.00	90.00	94.00	78.00
2	2	60.00	65.00	71.00	70.00
3	3	80.00	75.00	76.00	85.00
4	4	75.00	65.00	94.00	81.00
5	5	65.00	70.00	71.00	52.00
6	6	65.00	45.00	35.00	52.00
7	7	75.00	80.00	100.00	78.00
8	8	75.00	55.00	76.00	40.00
9	9	65.00	75.00	47.00	60.00
10	10	85.00	75.00	94.00	81.00
11	11	65.00	65.00	71.00	67.00
12	12	60.00	50.00	65.00	55.00
13	13	60.00	70.00	65.00	37.00

Descriptives

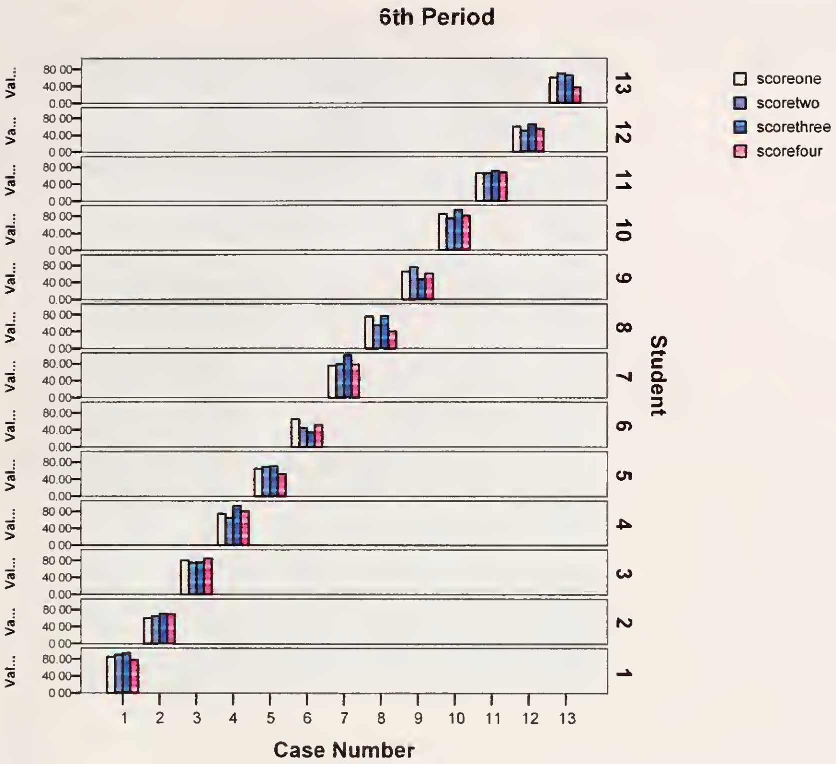
Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Student	13	1	13	7.00	3.894
scoreone	13	60.00	85.00	70.3846	9.23344
scoretwo	13	45.00	90.00	67.6923	12.35168
scorethree	13	35.00	100.00	73.7692	18.97873
scorefour	13	37.00	85.00	64.3077	16.18839
Valid N (listwise)	13				

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
scoreone	Between Groups	1023.077	12	85.256	.	.
	Within Groups	.000	0	.		
	Total	1023.077	12			
scoretwo	Between Groups	1830.769	12	152.564	.	.
	Within Groups	.000	0	.		
	Total	1830.769	12			
scorethree	Between Groups	4322.308	12	360.192	.	.
	Within Groups	.000	0	.		
	Total	4322.308	12			
scorefour	Between Groups	3144.769	12	262.064	.	.
	Within Groups	.000	0	.		
	Total	3144.769	12			

Graph



Factor Analysis

Correlation Matrix

		scoreone	scoretwo	scorethree	scorefour
Sig. (1-tailed)	scoreone		.024	.005	.010
	scoretwo	.024		.015	.027
	scorethree	.005	.015		.014
	scorefour	.010	.027	.014	

Communalities

	Initial	Extraction
scoreone	1.000	.739
scoretwo	1.000	.639
scorethree	1.000	.746
scorefour	1.000	.687

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.811	70.272	70.272	2.811	70.272	70.272
2	.476	11.897	82.169			
3	.402	10.058	92.227			
4	.311	7.773	100.000			

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component
	1
scoreone	.860
scoretwo	.799
scorethree	.864
scorefour	.829

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

NPar Tests

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
scoreone	13	70.3846	9.23344	60.00	85.00
scoretwo	13	67.6923	12.35168	45.00	90.00
scorethree	13	73.7692	18.97873	35.00	100.00
scorefour	13	64.3077	16.18839	37.00	85.00
Student	13	7.00	3.894	1	13

Kruskal-Wallis Test

Ranks

	Student	N	Mean Rank
scoreone	1	1	12.50
	2	1	2.00
	3	1	11.00
	4	1	9.00
	5	1	5.50
	6	1	5.50
	7	1	9.00
	8	1	9.00
	9	1	5.50
	10	1	12.50
	11	1	5.50
	12	1	2.00
	13	1	2.00
	Total	13	
scoretwo	1	1	13.00
	2	1	5.00
	3	1	10.00
	4	1	5.00
	5	1	7.50
	6	1	1.00
	7	1	12.00
	8	1	3.00
	9	1	10.00
	10	1	10.00
	11	1	5.00
	12	1	2.00
	13	1	7.50
	Total	13	

Ranks

	Student	N	Mean Rank
scorethree	1	1	11.00
	2	1	6.00
	3	1	8.50
	4	1	11.00
	5	1	6.00
	6	1	1.00
	7	1	13.00
	8	1	8.50
	9	1	2.00
	10	1	11.00
	11	1	6.00
	12	1	3.50
	13	1	3.50
	Total	13	
scorefour	1	1	9.50
	2	1	8.00
	3	1	13.00
	4	1	11.50
	5	1	3.50
	6	1	3.50
	7	1	9.50
	8	1	2.00
	9	1	6.00
	10	1	11.50
	11	1	7.00
	12	1	5.00
	13	1	1.00
	Total	13	

Test Statistics[a,b]

	scoreone	scoretwo	scorethree	scorefour
Chi-Square	12.000	12.000	12.000	12.000
df	12	12	12	12
Asymp. Sig.	.446	.446	.446	.446

a. Kruskal Wallis Test

b. Grouping Variable: Student

8270 6250 13
10/25/06 VA